

# Utilizing Xrefs and Data Shortcuts

Mike Robertson  
CADD Applications Developer  
FDOT Engineering CADD Systems Office

## What is going to be covered:

- Drawing References
- Raster References
- MicroStation User Tips
- Data Shortcuts (Design Data References)
- Civil3D Projects & Working Folders

## Agenda

I may mix Autocad & MicroStation terms

Such as:

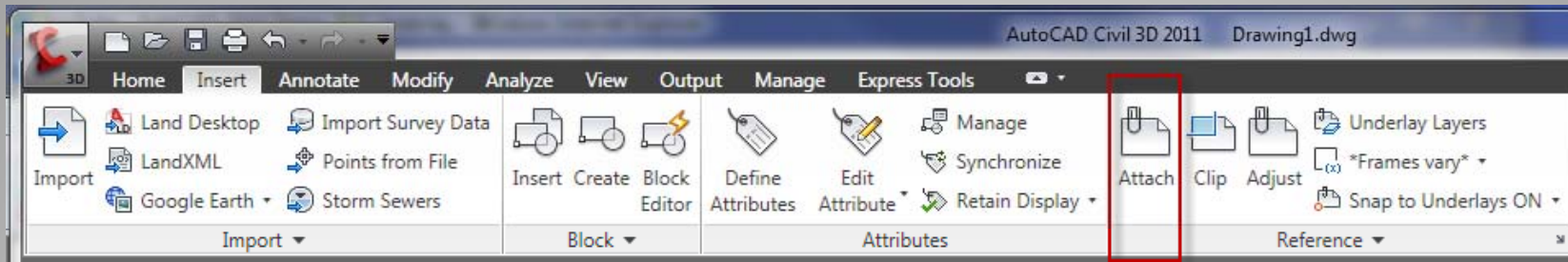
- Layer                      Level
- Template                  Seedfile
- Block                      Cell
- Xref                        Reference File
- Linetype                  Line style
- [More terms can be found in Autocad Help](#)

**“AutoStation” speak**

- Vector based files you can attach:
  - DWG,DXF (treated as an overlay)
  - DGN, PDF (treated as an underlay)
- Raster based files supported natively:
  - BMP, CALS-I, FLIC, GeoSPOT, IG4, JPG, PCX, PICT, PNG, RLC, TARGA, TIFF
- Raster based files supported with Raster Design Object Enabler (Insert):
  - DOQ, ECW, JPEG2000, SID
- Raster based files supported with Raster Design Object Enabler (View):
  - DEM, DTED, BITONAL, ESRI Grid A & B, Landsat FAST, NITF, QuickBird TIFF

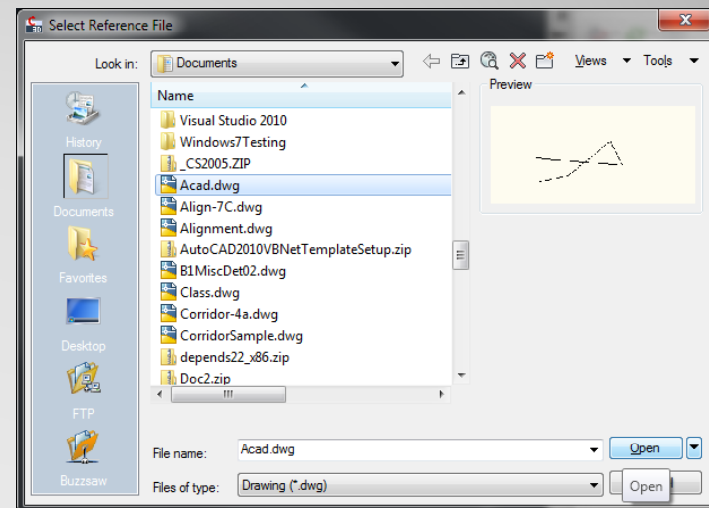
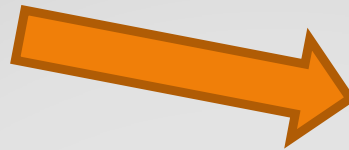
## File Types for References

## Using The Ribbon



## Using The Command: xattach

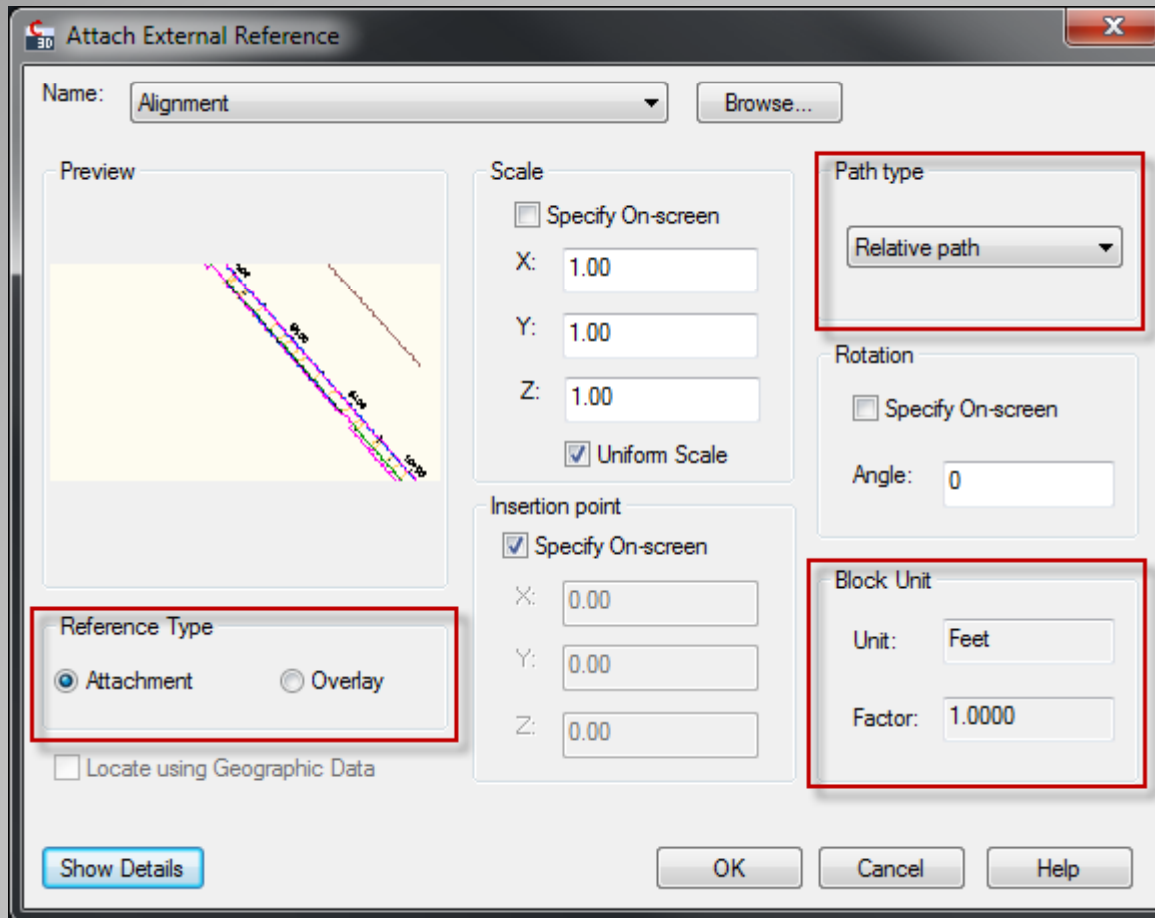
```
Specify next point or [Undo]:  
Command: xattach  
Command:
```



Pay attention to the active layer when attaching references.

Select Your Reference File

# How To Insert A XRef

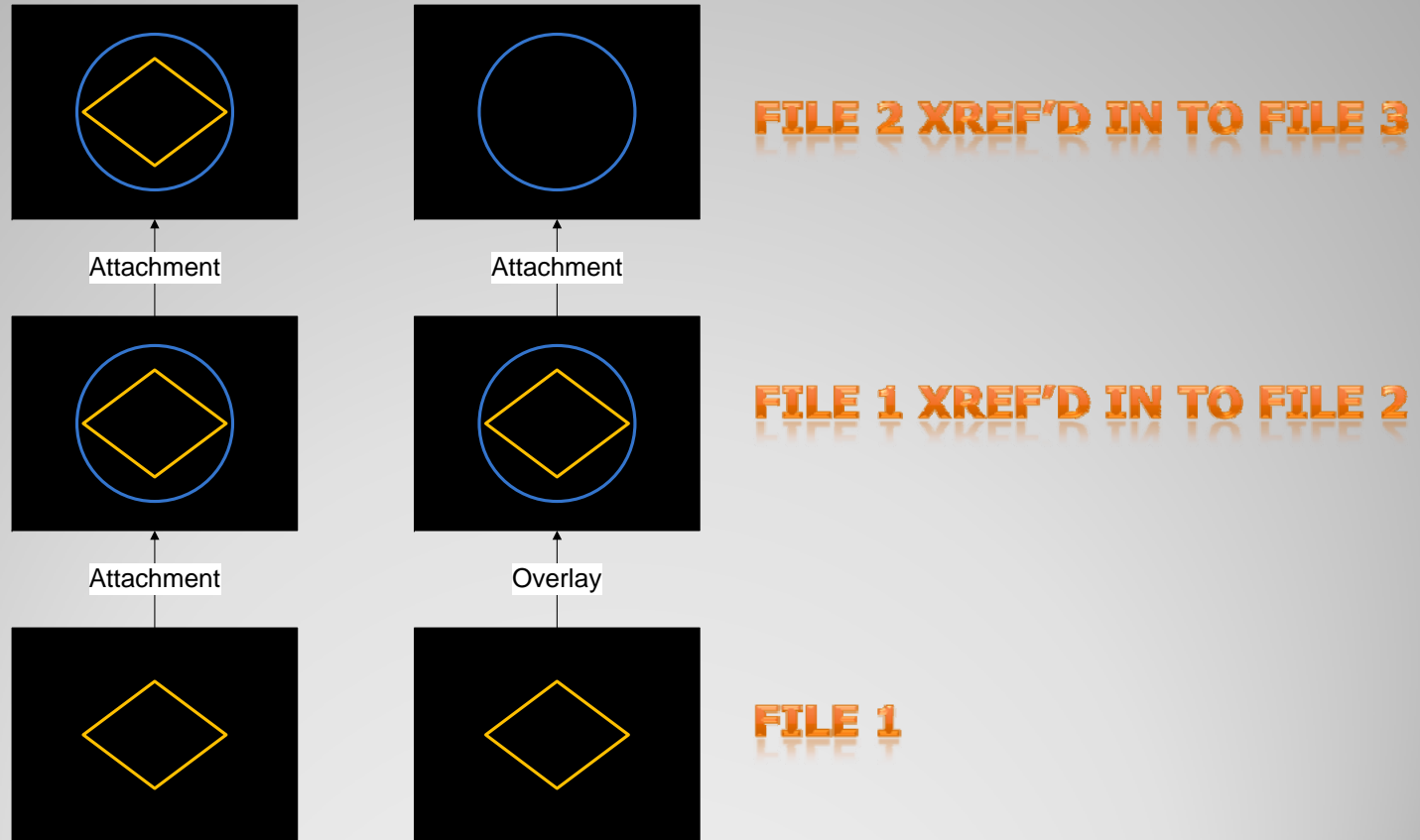


Path Type  
should ALWAYS  
be set to  
"Relative Path"

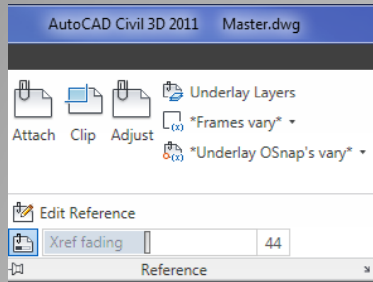
Autocad will  
NOT autoscale  
references, this  
lets you know  
the units in the  
reference.

## Attach External Reference Dialog

- Attachment (in MS terms:nested reference)
- Overlay (in MS terms:no nesting)

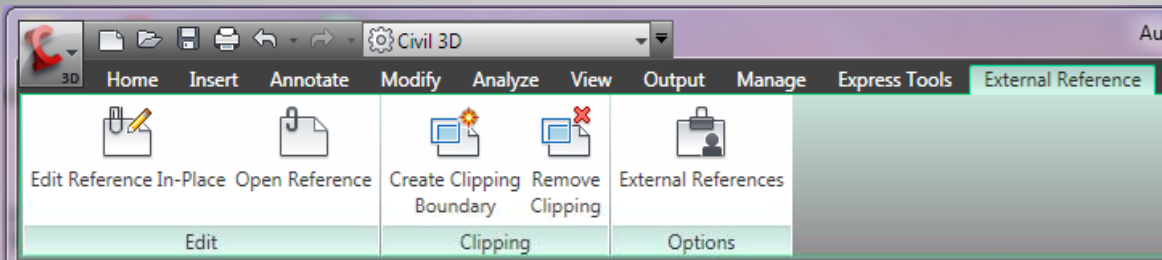


## Attachment Methods

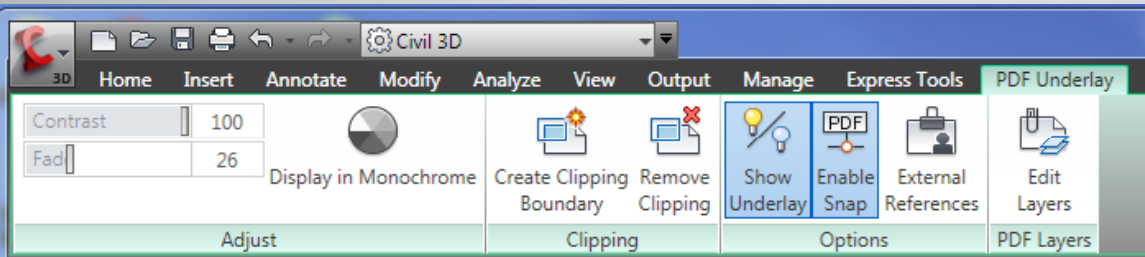


## General Reference Modification Tools

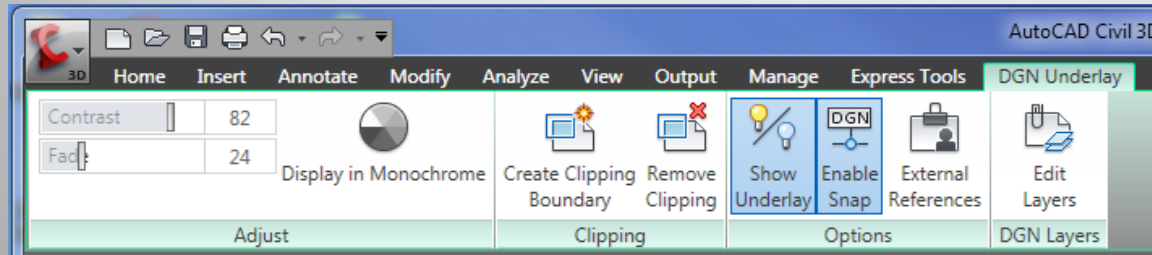
DWG/DWF Fading Setting



DWG/DXF Tools



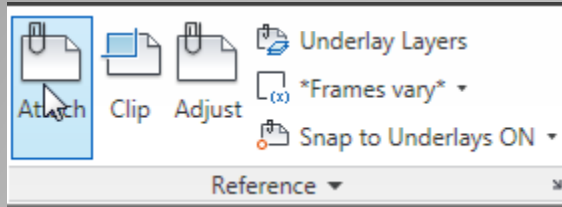
PDF Tools



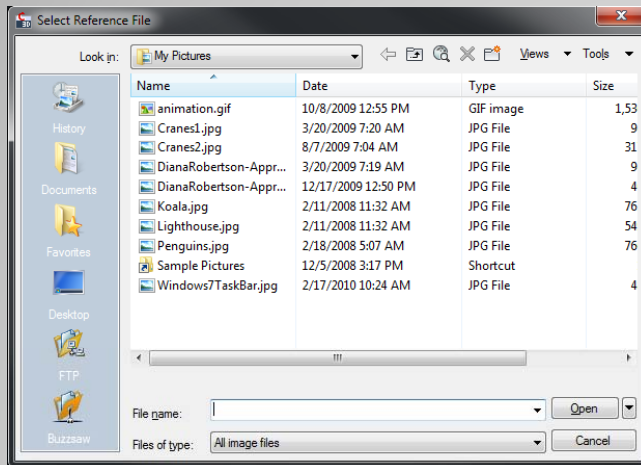
DGN Tools

# XRef Tools

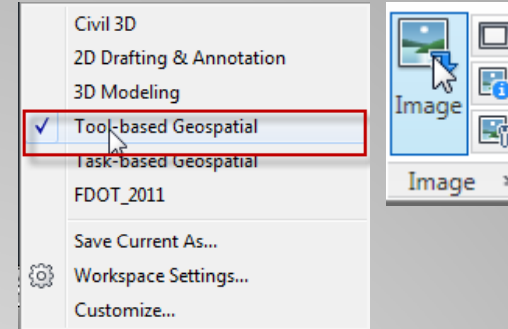
## Inserting Plain Raster Images



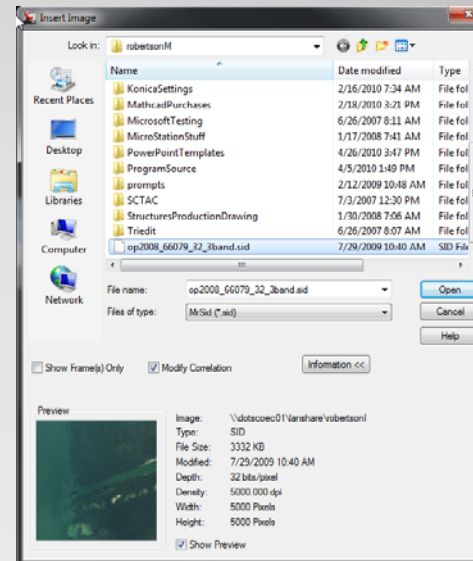
## Command: ImageAttach



## Inserting Geographic Images\*

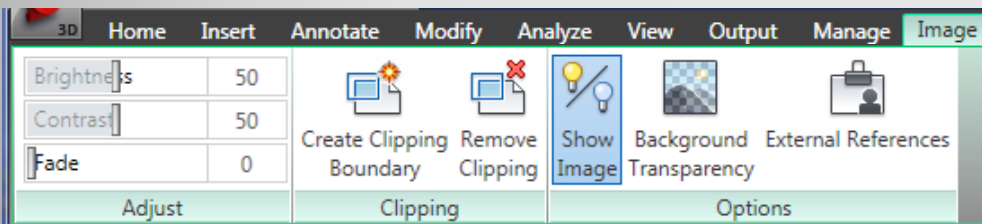


## Command: MapInsert



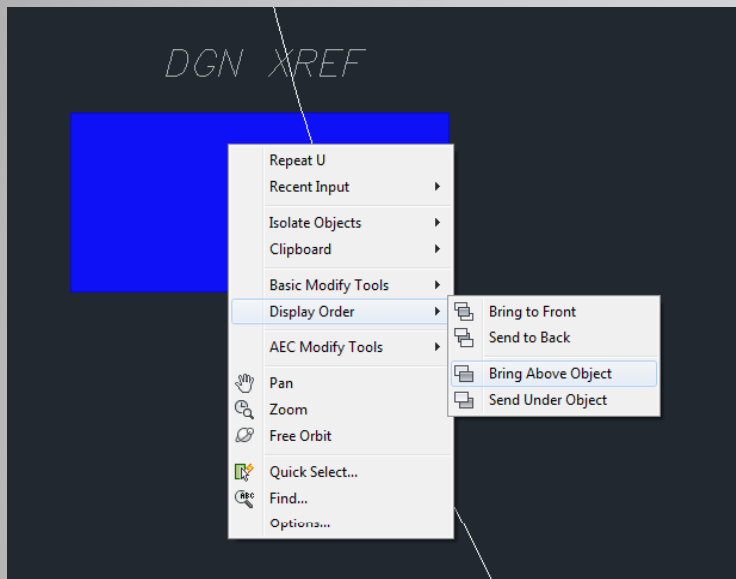
\*Requires Raster Design OE

# Raster Insertion Tools

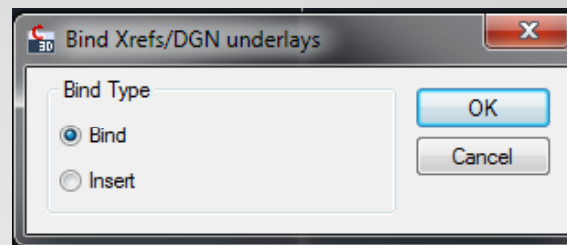
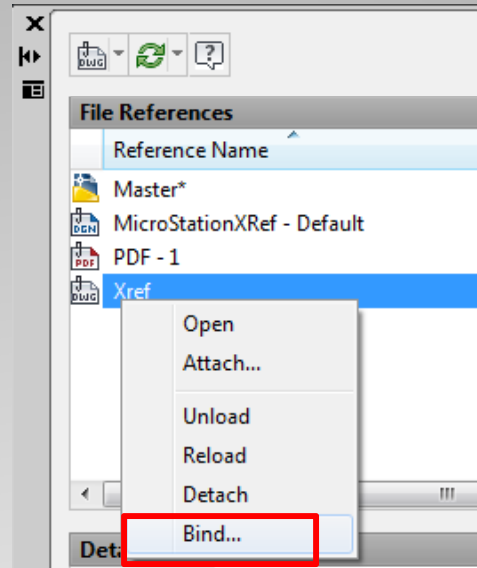


When attaching Xrefs make sure  
The active layer is set to XREF

Freezing the XREF layer will turn  
OFF all your references



Use “Display Order” to set  
display priority



**Bind** option brings the reference in as a  
block with it's autonomy intact (layers,  
blocks, etc).

**Insert** option uses existing definitions if  
available.

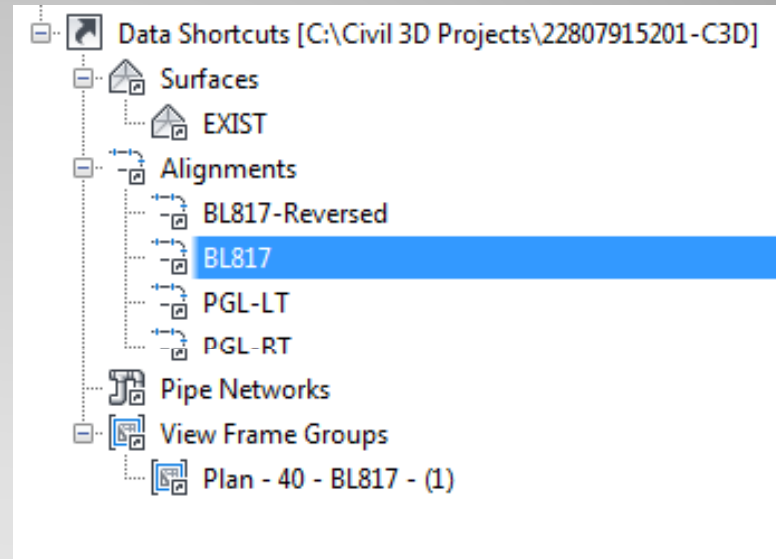
BIND command  
allows you to bring  
DWG & DGN  
objects into the  
active file.

## Tips for MicroStation users

- Data Shortcuts are like Xrefs to data only, not Autocad Entities.
- Data Shortcuts are only available in Civil3D. Plain Autocad can access some of the properties (but not modify) if the Civil3D object enabler is installed.
- Data Shortcuts makes files smaller and more responsive.
- Corridors can only be modeled using Data Shortcuts (not xrefs)
- Subassemblies can only target Data Shortcuts (not xref entities)

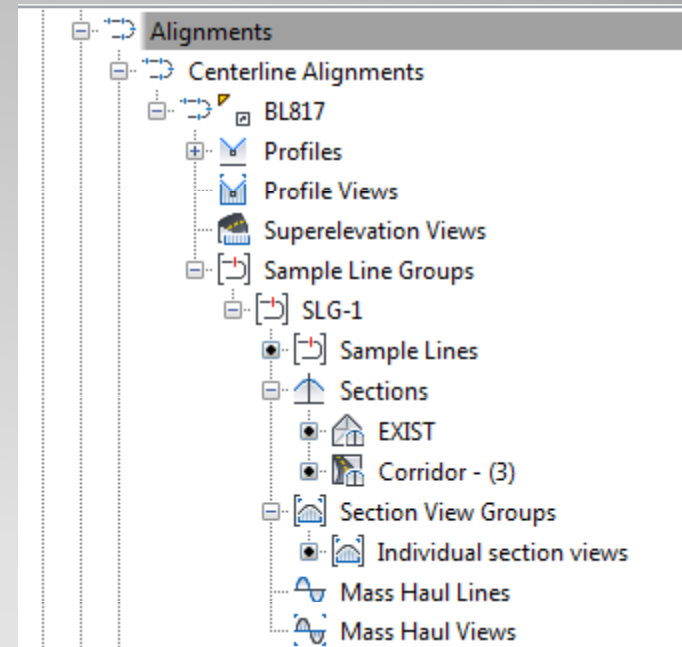
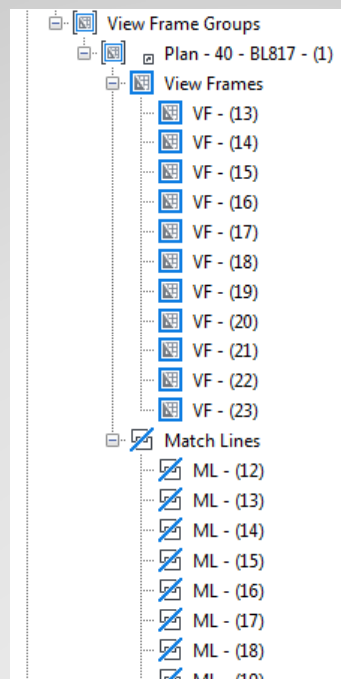
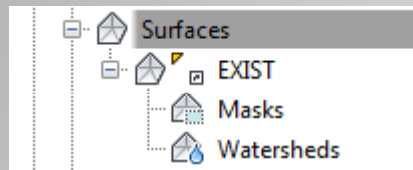
## Data Shortcuts (DS)

- Types of data in Data Shortcuts
  - Surfaces
  - Alignments
    - Centerline
    - Offset
    - Curb Return
    - Miscellaneous
  - Pipe Networks
  - View Frame Groups



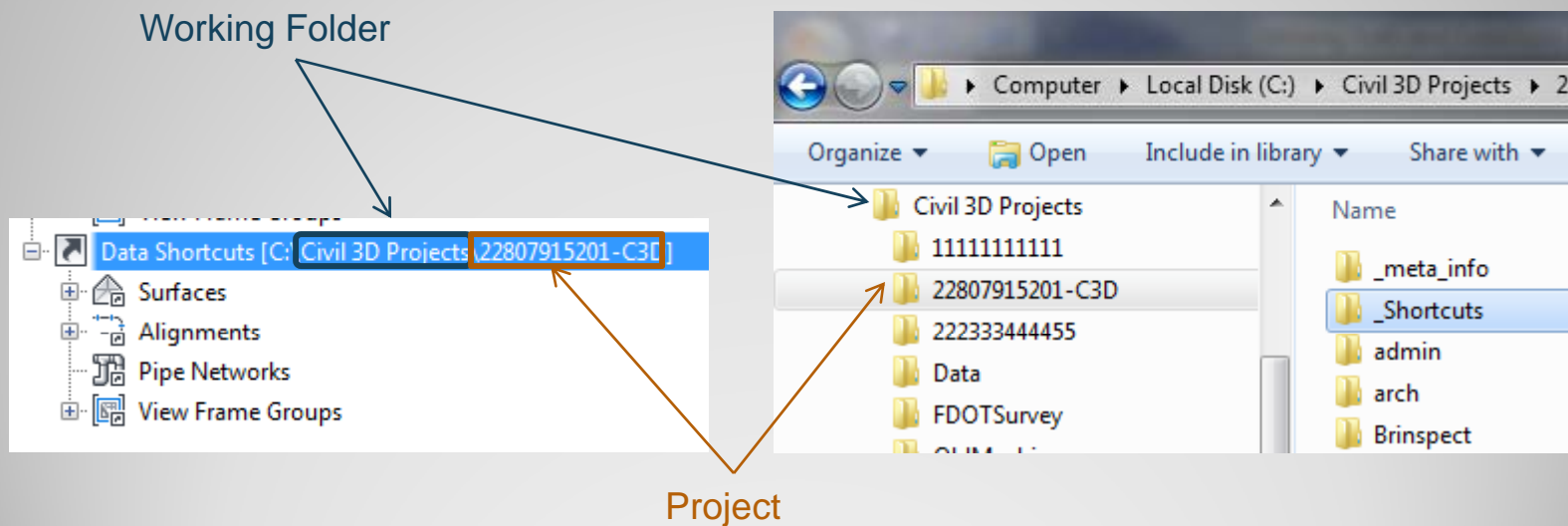
**Data Shortcuts (DS)**

- What type of data is available for each Data Type?
- Every bit of data that belongs to that type!



## Data Shortcuts (DS)

- Working Folder – A folder that contains Civil3D projects
- Civil 3D Project – any folder under the Working Folder that contains a \_Shortcuts folder
- Project Association (option) – A drawing can be associated to a project so that the Working Folder & Data Shortcut locations are automatically set when a file is opened. A file can only be associated to one project.

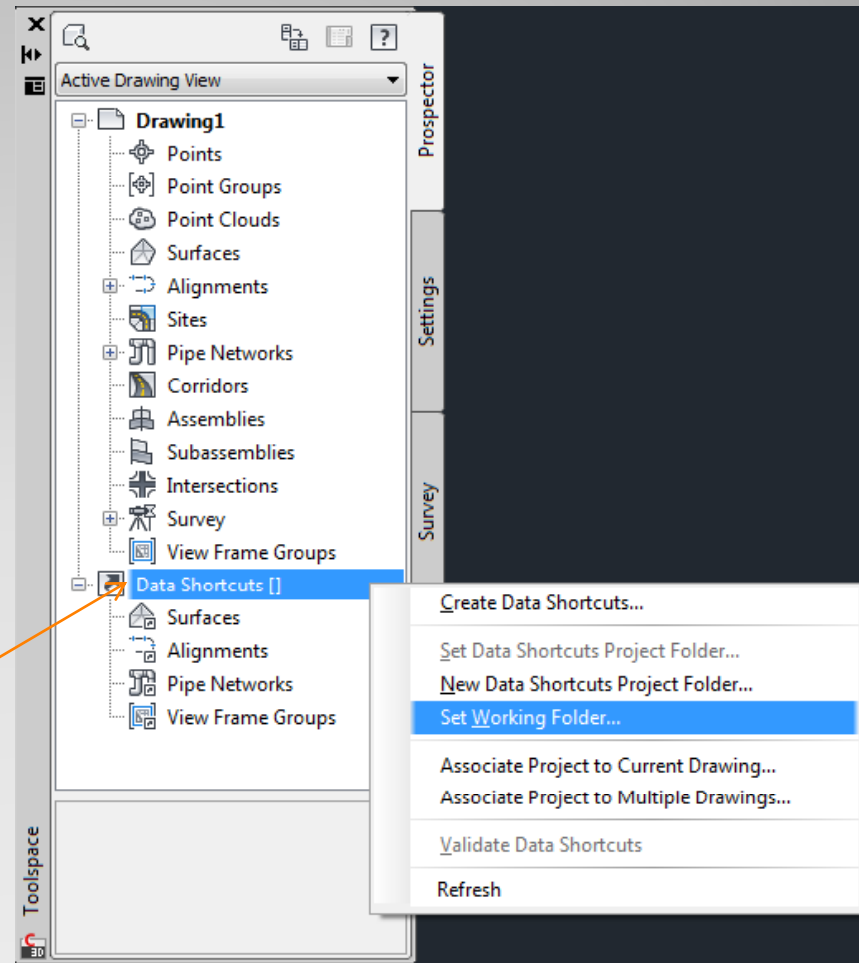


## Data Shortcuts - Terminology

- Setting the working folder

1. Right Click the “Data Shortcut” entry located on the Prospector Tab of the Civil3D Toolspace Palette
2. Select the “Set Working Folder” menu item
3. Browse to the folder where you would either like to start creating projects or already have projects created.

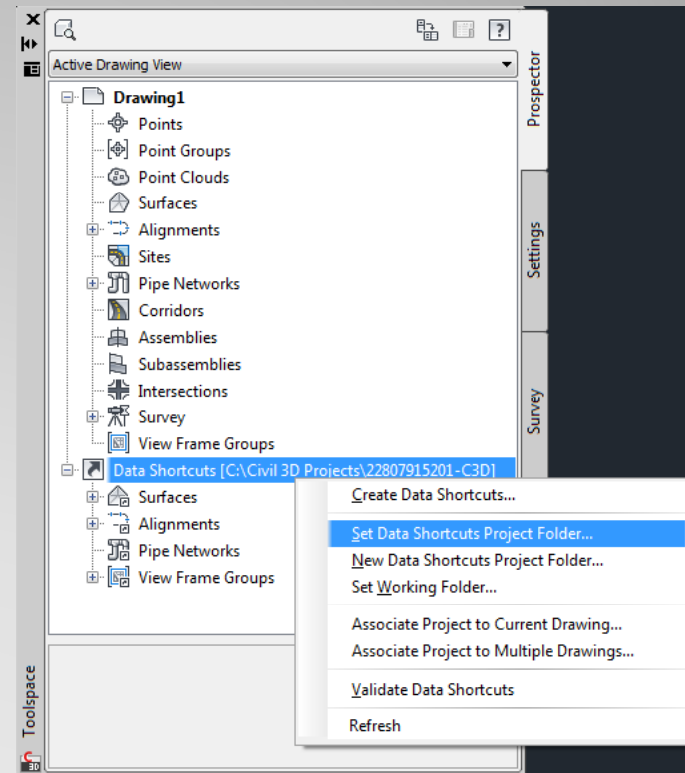
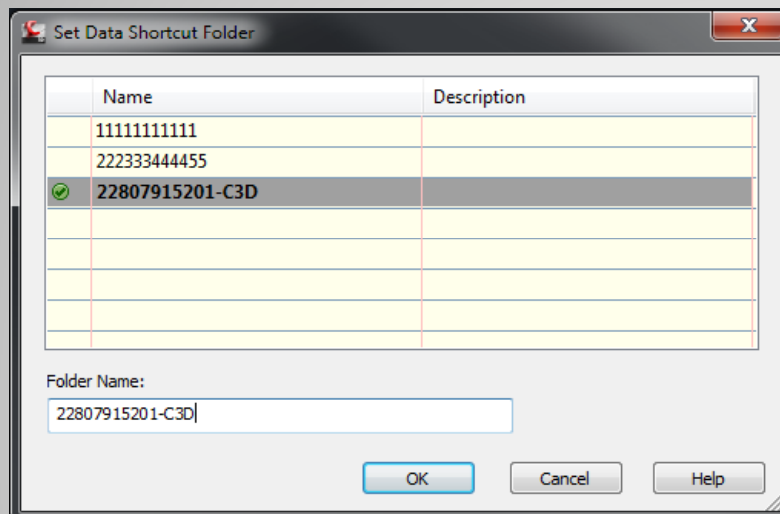
Note: if no projects exist in the current working folder, the path in the Data Shortcuts listing will be empty



## Data Shortcuts – Working Folder

- Setting the Data Shortcuts folder

1. Right click the “Data Shortcuts” item
2. Select “Set Data Shortcuts Project Folder...”
3. Select the Current Project

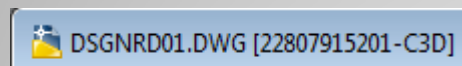


Note: If the Working Folder contains NO projects you can't set the DS folder

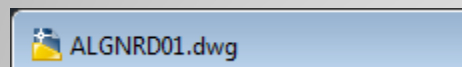
# Data Shortcuts – D.S. Folder

- Project Association – provides a means for Civil3D to try to automatically resolve and switch DS folders.

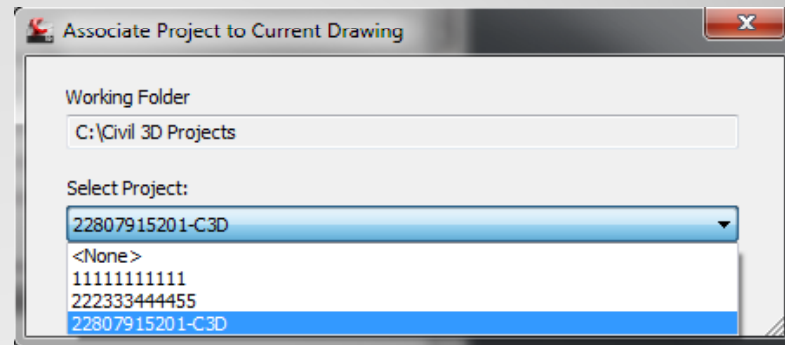
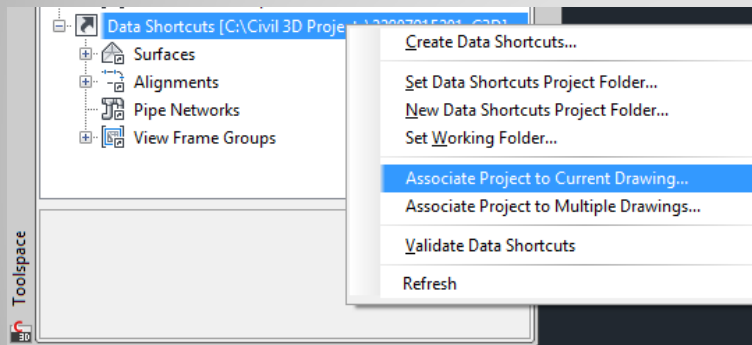
You can tell if a file is associated with a project by the window title



File is associated to project 22807915201-C3D



File is not associated to a project



## Data Shortcuts – Association

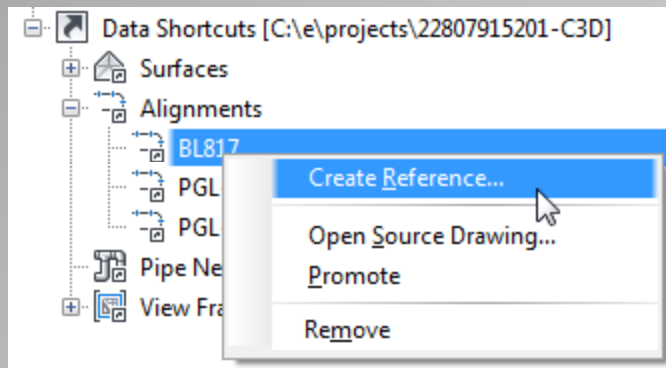
- Create a DS capable object in current file

Select the object you want to make available for shortcut

Object	Status	Description
<input checked="" type="checkbox"/> Alignments		
<input type="checkbox"/> BL817		
<input type="checkbox"/> PGL-LT		
<input type="checkbox"/> PGL-RT		
<input checked="" type="checkbox"/> Flug Align	To be added	

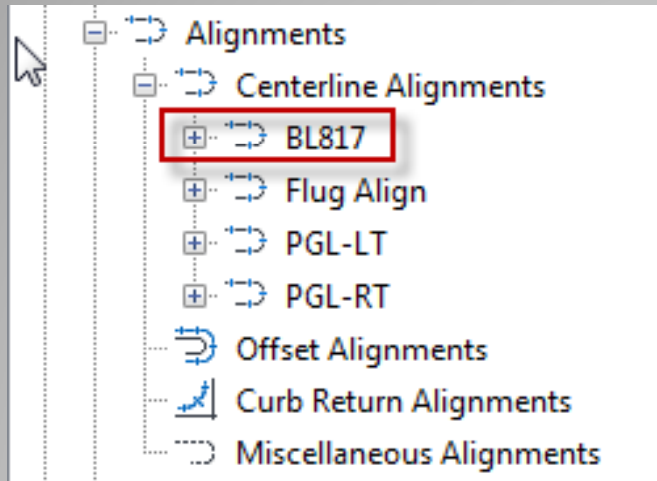
## Create a Data Shortcut

- Creating a reference to a DS object

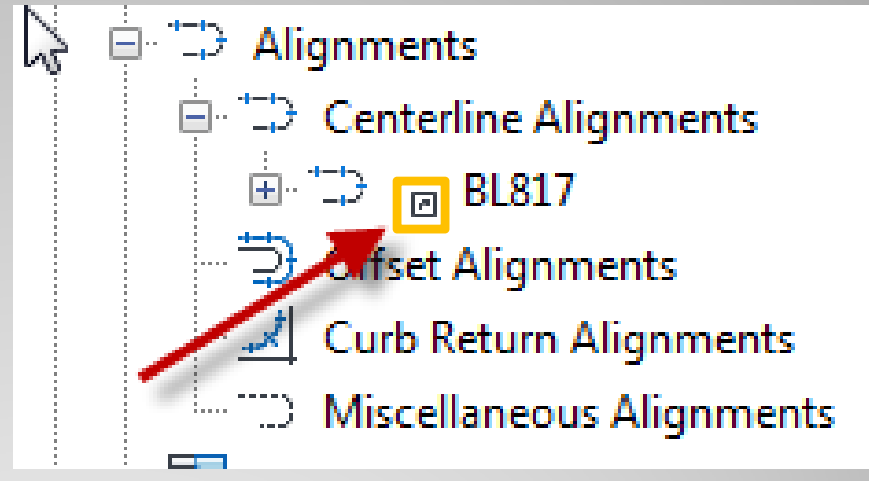


Right click the object to which you want to reference and select “Create Reference”

## Reference a Data Shortcut

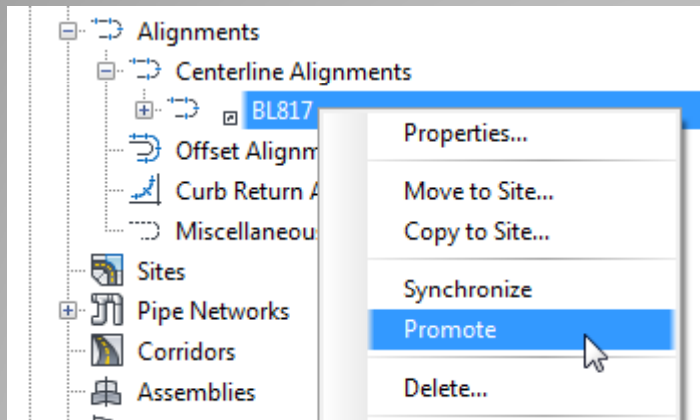


Alignment in active file



Alignment is referenced

**Active or Reference DS?**



Promote embeds the shortcut object into the active file, much like a Bind command in regular AutoCAD

**Embed DS data in active file**